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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,462	02/11/2002	Steven Nelson	7385-83653	4391

7590 03/12/2003

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EXAMINER
ZARNEKE, DAVID A

ART UNIT	PAPER NUMBER
2827	

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/073,462	NELSON ET AL.	
	Examiner	Art Unit	
	David A. Zarneke	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-27 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 11 February 2002 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Chapnik et al., US Patent 5,990,498.

Chapnik teaches a light-emitting diode comprising:

disposing an optical array (12 & 5, 1+) adjacent a first side of an optically transparent substrate (20'), such that a plurality of transmission paths of the optical array pass directly through the substrate (14);

applying an optically transparent underfill (54) between the substrate and adjacent optical array, with the plurality of transmission paths of the optical array passing directly through the underfill (14); and

coupling a plurality of optical signals of the optical array through the optically transparent underfill and optically transparent substrate between the optical array and an optical element, which could be a connector (5, 57+).

Claims 19, 20, 22, 24, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapnik et al., US Patent 5,990,4898.

Chapnik teaches a light-emitting diode comprising:

disposing an optical array (12 & 5, 1+) adjacent a first side of an optically transparent substrate (20'), such that a plurality of transmission paths of the optical array pass directly through the substrate (14);

applying a mask layer (76) having edges (78) to allow for smaller light source tolerances (an optical port); and

applying an optically transparent underfill (54) between the substrate and adjacent optical array, with the plurality of transmission paths of the optical array passing directly through the underfill (14).

With respect to claims 20 and 25, Chapnik teaches the optically transparent underfill (54) to be an adhesive (4, 7+).

As to claim 22, Chapnik teaches the use formation of an optical port using the mask layer (76).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapnik et al., US Patent 5,990,4898, as applied to claim 1 above, and further in view of Kuczynski, US Patent 6,356,686.

Regarding claims 2-4, Chapnik fails to teach the use of alignment apertures and guide pins to connect the array to the connector.

Kuczynski teaches an optoelectronic device comprising a VCSEL die (230) having alignment holes (240) connected to an optical coupler (300), having optical fibers (190), via the insertion of coupler pins (310) on the coupler (240) into the alignment holes (240).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the alignment holes and coupler pins of Kuczynski in the invention of Chapnik because the hole and pin alignment process allow for easy and accurate alignment of the optical fibers to the dies.

With respect to claim 5, Chapnik teaches the optically transparent underfill (54) to be an adhesive (4, 7+).

As to claim 7 and 9, Chapnik teaches the placement of substrate electrodes (22) on the surface of the optically transparent substrate (20').

Regarding claim 8, Chapnik teaches electrically connecting the array to the electrodes using bond wires (26).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapnik et al., US Patent 5,990,4898, as applied to claim 1 above, and further in view of Kuczynski, US Patent 6,356,686, as applied to claim 5 above, and further in view of Fergason, US Patent 4,556,289.

Chapnik, which teaches the use of a mask layer (76) to block portions of the emitted light (5, 61+), and Kuczynski both fail to teach the addition of a dye to the underfill to block a portion of the optical array.

Fergason teaches the use of a dye in an optical shutter to absorb some of the light emitted (3, 27+).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the dye of Fergason in the combined inventions of Chapnik and Kuczynski because Fergason teaches that the dye absorbs light thereby allowing control over the optical attenuation of light emitted and index of refraction and the low birefringence minimize the distortion of the image characteristics of the incident light (8, 48+).

Therefore, use of a dye in the mask layer of Chapnik would allow for control over the emitted light.

Claims 10-14 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapnik et al., US Patent 5,990,4898, as applied to claim 1 above, and further in view of Kuczynski, US Patent 6,356,686.

Chapnik teaches a light-emitting diode comprising:

an optical array (12 & 5, 1+) adjacent a first side of an optically transparent substrate (20'), such that a plurality of transmission paths of the optical array pass directly through the substrate (14);

an optically transparent underfill (54) between the substrate and adjacent optical array, with the plurality of transmission paths of the optical array passing directly through the underfill (14); and

a plurality of optical signals of the optical array through the optically transparent underfill and optically transparent substrate between the optical array and an optical element (5, 57+).

Chapnik fails to teach the optical element to be an optical connector for holding optical fibers and guiding them into alignment with the array transmission paths.

Kuczynski teaches an optoelectronic device comprising a VCSEL die (230) having alignment holes (240) connected to an optical coupler (300), having optical fibers (190), via the insertion of coupler pins (310) on the coupler (240) into the alignment holes (240).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the coupler having alignment holes and coupler pins of Kuczynski in the invention of Chapnik because the hole and pin alignment process allow for easy and accurate alignment of the optical fibers to the dies.

With respect to claim 14, Chapnik teaches the optically transparent underfill (54) to be an adhesive (4, 7+).

As to claim 16 and 18, Chapnik teaches the placement of substrate electrodes (22) on the surface of the optically transparent substrate (20').

Regarding claim 17, Chapnik teaches electrically connecting the array to the electrodes using bond wires (26).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chapnik et al., US Patent 5,990,4898, in view of Kuczynski, US Patent 6,356,686, as applied to claims 10-13 above, and further in view of Fergason, US Patent 4,556,289.

Chapnik, which teaches the use of a mask layer (76) to block portions of the emitted light (5, 61+), and Kuczynski both fail to teach the addition of a dye to the underfill to block a portion of the optical array.

Fergason teaches the use of a dye in an optical shutter to absorb some of the light emitted (3, 27+).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the dye of Fergason in the combined inventions of Chapnik and Kuczynski because Fergason teaches that the dye absorbs light thereby allowing control over the optical attenuation of light emitted and index of refraction and the low birefringence minimize the distortion of the image characteristics of the incident light (8, 48+).

Therefore, use of a dye in the mask layer of Chapnik would allow for control over the emitted light.

Claims 21 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapnik et al., US Patent 5,990,4898, in view of Kuczynski, US Patent 6,356,686,

as applied to claims 19 and 24 respectively above, and further in view of Fergason, US Patent 4,556,289.

Chapnik, which teaches the use of a mask layer (76) to block portions of the emitted light (5, 61+), and Kuczynski both fail to teach the addition of a dye to the underfill to block a portion of the optical array.

Fergason teaches the use of a dye in an optical shutter to absorb some of the light emitted (3, 27+).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the dye of Fergason in the combined inventions of Chapnik and Kuczynski because Fergason teaches that the dye absorbs light thereby allowing control over the optical attenuation of light emitted and index of refraction and the low birefringence minimize the distortion of the image characteristics of the incident light (8, 48+).

Therefore, use of a dye in the mask layer of Chapnik would allow for control over the emitted light.

Claims 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapnik et al., US Patent 5,990,4898, as applied to claims 19 and 24 respectively above, and further in view of Kuczynski, US Patent 6,356,686.

Chapnik fails to teach the encapsulant as protecting the optical port.

Regarding claims 23 and 27, Kuczynski teaches the encapsulant as filling the gap between the source (or port) and the optical coupler by passivating the sources and preventing degradation of the light signal (2, 28+).

It would have been obvious to one of ordinary skill in the art at the time of the invention to protect the optical port as in Kuczynski in the invention of Chapnik because the combined optical port protection and encapsulating saves a separate step (abstract).

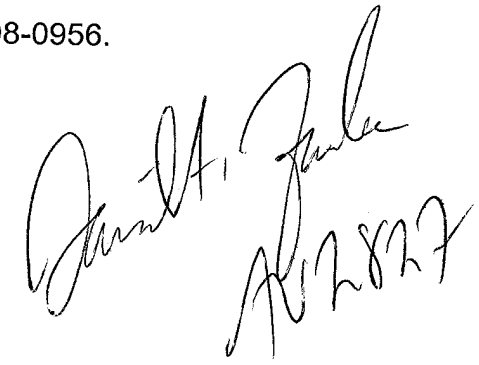
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kaye, US Patent 4,514,085, and JP 362230046A are both cited as teaching the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (703)-305-3926. The examiner can normally be reached on M-F 10AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703)-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-308-7722 for regular communications and (703)-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.



David A. Zarneke
March 10, 2003